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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,752	03/27/2001	Peter J. Ortoleva	210278	3993

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LEYDIG VOIT & MAYER, LTD
TWO PRUDENTIAL PLAZA, SUITE 4900
180 NORTH STETSON AVENUE
CHICAGO, IL 60601-6780

EXAMINER

FREJD, RUSSELL WARREN

ART UNIT	PAPER NUMBER
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2128

DATE MAILED: 06/28/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/818,752

Applicant(s)

ORTOLEVA, PETER J.

Examiner

Russell Frejd

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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Examination of Application #09/818,752

1. Claims 1-3 of application 09/818,752, filed on 27-March-2001, are presented for examination.

Claim Rejections under 35 U.S.C. § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459

(1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering the objective evidence present in the application indicating obviousness or nonobviousness.
3. Claims 1-3 are rejected under 35 U.S.C. 103 as being unpatentable over Celniker, U.S. Patent no. 5,905,657.
- 3.1 Celniker disclosed the invention substantially as claimed, including a Simulation Based Interpretation ("SBI") [col. 3, lines 44-64] as an alternative to the *inversion* process for producing consistent models from acquired data;

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wherein SBI gathers acquired data from the geologic structures being modeled
(collecting data in claims 1 and 2);

the acquired data is interpreted (i.e. mapped), with the resulting interpretation being
captured as a geoscience model *(simulating rock rheology in claim 10);*

the model then being tested by simulating an original acquisition experiment to produce
synthetic data *(simulating mechanical processes in claim 1);*

determining differences between the synthetic data and the acquired data, the
differences being used to adjust the model, and repeatedly iterating these steps to cause the
model to converge toward a consistent model in which the differences between the synthetic and
the acquired data is reduced *(adjusting the predictions in claim 1);*

making a single interpretation (map) consistent with several measurements from a
variety of experiments at one time, in order to improve the quality of the interpretation for
prediction purposes *(integrating the resulting predictions in claim 1);* and

the whole SBI program residing on a computer-readable medium *(claim 3).*

3.2 Celniker does not specifically teach continuous deformation with fracture, fault, gouge,
and pressure solutions, and coevolving deformation with multiphase flow, petroleum generation,
mineral reactions and heat transfer *(claim 1);* or collecting well log data, surface data, and core
data *(claim 2).*

3.3 However, Celniker does disclose using data collected through seismic instrumentation, to
predict the location of subsurface structures and the physical properties of those subsurface
structures [col. 1, lines 20-22]. Celniker further discloses geometrically modeling the subsurface
structures, for the purpose of representing complicated geometrical shapes, such as the shape

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of a salt dome or salt wall or the shape of a group of folded sedimentary beds [col. 1, lines 25-28]. The Examiner respectfully posits that 1) Celniker discloses the collecting, simulating adjusting and predicting steps of the present invention, and 2) the rock rheology and mechanical processes of the present invention are well known throughout the hydrocarbon-producing industry. For at least these reasons, the Examiner takes Official Notice that the claimed hydrocarbon/seismic features of the present invention are old and well known, and a person of ordinary skill in the art would have been motivated to modify the Celniker invention to include those claimed features because it would improve the accuracy of the computerized models, thereby limiting the cost of locating and producing hydrocarbons, as well as the associated cost of hydrocarbon products, such as gasoline and heating oil [col. 1, lines 11-16].

Response Guidelines

4. A shortened statutory period for response to this action is set to expire **3 (three) months and 0 (zero) days** from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see MPEP 710.02, 710.02(b)).

5. **Any response to the Examiner in regard to this non-final action should be**

directed to: Russell Frejd, telephone number (703) 305-4839, Monday-Friday from 0630 to 1500 ET, **or** the examiner's supervisor, Kevin Teska, telephone number (703) 305-9704. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist, telephone number (703) 305-3900.

mailed to: Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to: (703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

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Date: 20-June-2004

RUSSELL FREJD

RUSSELL FREJD
PRIMARY EXAMINER